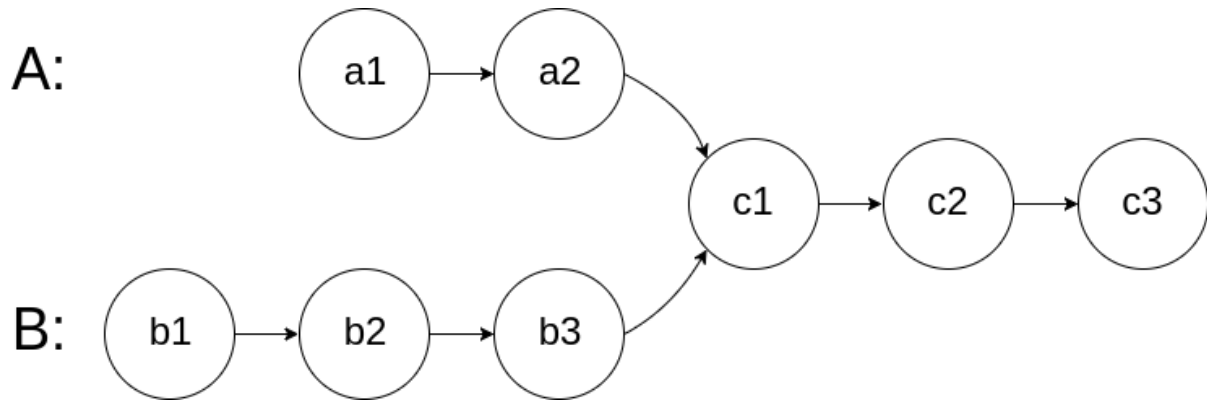


Intersection of Two Linked Lists (View)

Given the heads of two singly linked-lists `headA` and `headB`, return *the node at which the two lists intersect*. If the two linked lists have no intersection at all, return `null`.

For example, the following two linked lists begin to intersect at node `c1`:



The test cases are generated such that there are no cycles anywhere in the entire linked structure.

Note that the linked lists must **retain their original structure** after the function returns.

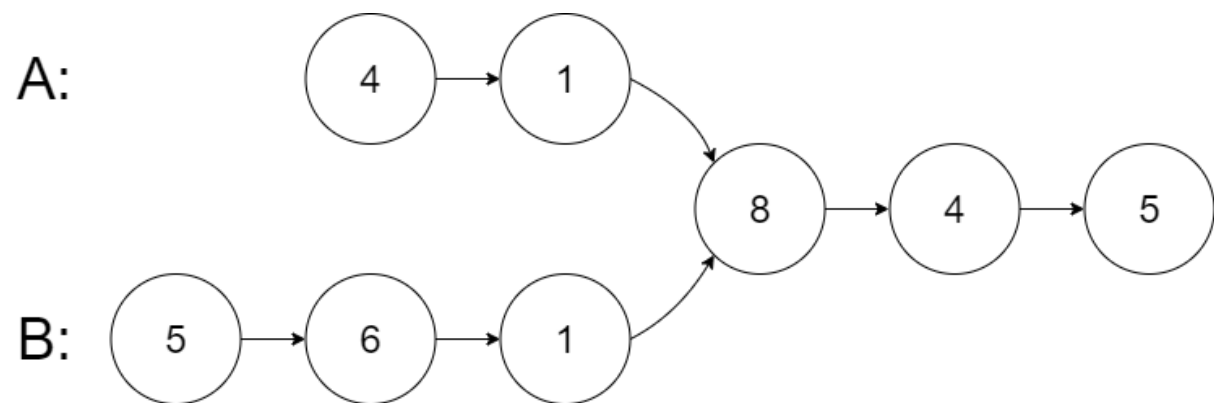
Custom Judge:

The inputs to the **judge** are given as follows (your program is **not** given these inputs):

- `intersectVal` - The value of the node where the intersection occurs. This is `0` if there is no intersected node.
- `listA` - The first linked list.
- `listB` - The second linked list.
- `skipA` - The number of nodes to skip ahead in `listA` (starting from the head) to get to the intersected node.
- `skipB` - The number of nodes to skip ahead in `listB` (starting from the head) to get to the intersected node.

The judge will then create the linked structure based on these inputs and pass the two heads, `headA` and `headB` to your program. If you correctly return the intersected node, then your solution will be **accepted**.

Example 1:



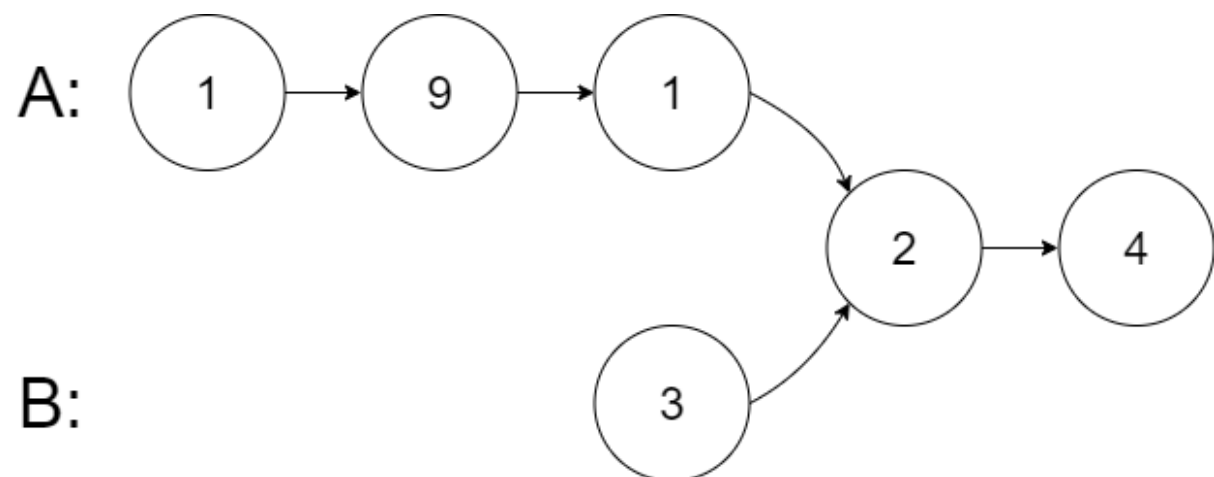
Input: intersectVal = 8, listA = [4,1,8,4,5], listB = [5,6,1,8,4,5], skipA = 2, skipB = 3

Output: Intersected at '8'

Explanation: The intersected node's value is 8 (note that this must not be 0 if the two lists intersect).

From the head of A, it reads as [4,1,8,4,5]. From the head of B, it reads as [5,6,1,8,4,5]. There are 2 nodes before the intersected node in A; There are 3 nodes before the intersected node in B.

Example 2:



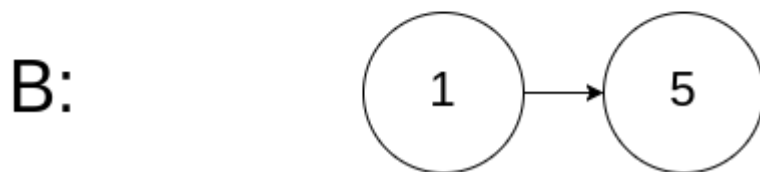
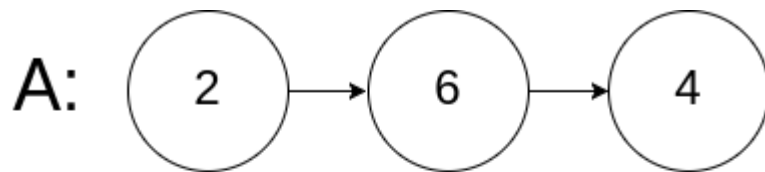
Input: intersectVal = 2, listA = [1,9,1,2,4], listB = [3,2,4], skipA = 3, skipB = 1

Output: Intersected at '2'

Explanation: The intersected node's value is 2 (note that this must not be 0 if the two lists intersect).

From the head of A, it reads as [1,9,1,2,4]. From the head of B, it reads as [3,2,4]. There are 3 nodes before the intersected node in A; There are 1 node before the intersected node in B.

Example 3:



Input: intersectVal = 0, listA = [2,6,4], listB = [1,5], skipA = 3, skipB = 2

Output: No intersection

Explanation: From the head of A, it reads as [2,6,4]. From the head of B, it reads as [1,5]. Since the two lists do not intersect, intersectVal must be 0, while skipA and skipB can be arbitrary values.

Explanation: The two lists do not intersect, so return null.

Constraints:

- The number of nodes of listA is in the m.
- The number of nodes of listB is in the n.
- $1 \leq m, n \leq 3 * 10^4$
- $1 \leq \text{Node.val} \leq 10^5$
- $0 \leq \text{skipA} < m$
- $0 \leq \text{skipB} < n$
- intersectVal is 0 if listA and listB do not intersect.
- $\text{intersectVal} == \text{listA}[\text{skipA}] == \text{listB}[\text{skipB}]$ if listA and listB intersect.

Follow up: Could you write a solution that runs in $O(m + n)$ time and use only $O(1)$ memory?